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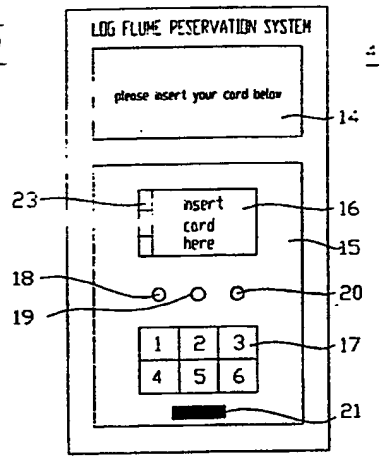
(54) Reservation systems

(57) A reservation system for an amusement park ride has a number of reservation stations 4 positioned around the amusement park. Customers entering the amusement park are provided each with an electronic card, which can be inserted into any of the reservation stations 4. Then, using a key pad 17, the customer requests a reservation for a particular ride. The reservation system maintains a count of existing reservations, and calculates the expected time taken for these existing reservations to be taken up. As a result of this calculation, the system offers the customer an earliest reservation time for the ride. The customer may then either accept that time or request a later time. Preferably, the electronic cards include means to display reservation times for various rides and/or timers/indicators to indicate when a reservation time is approaching.

In use of the system, queuing time at various rides may be reduced, thereby increasing the enjoyment of the customers and the potential revenue of the amusement park operators.

FIG.5



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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

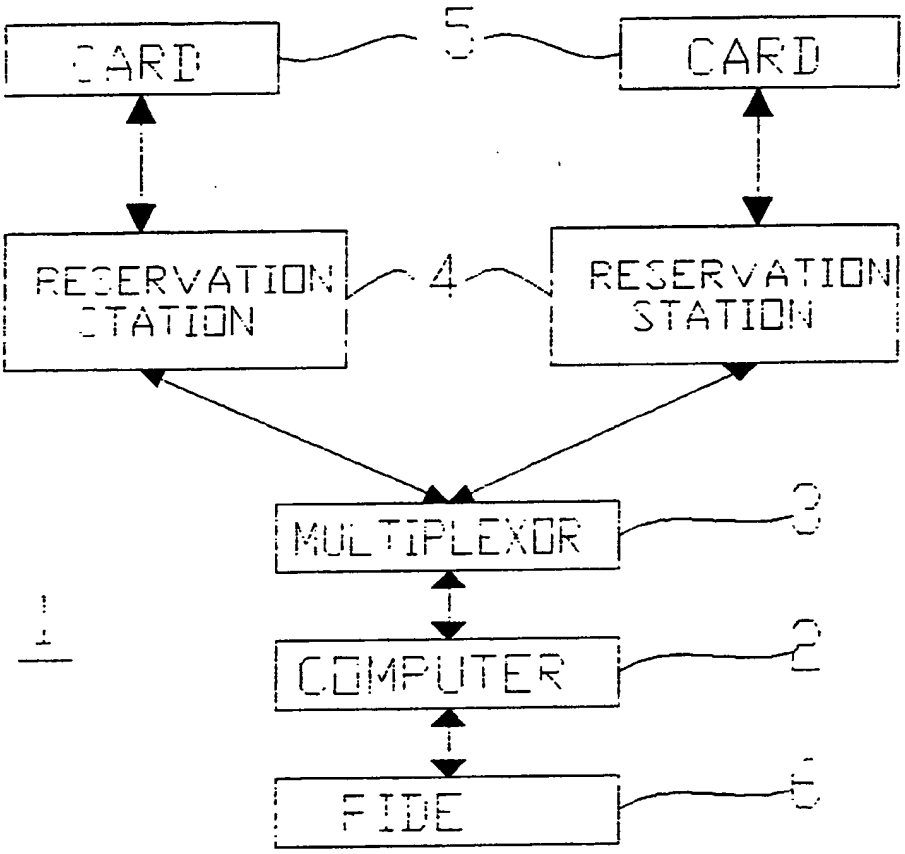
CARD
5
CARD
RESERVATION STATION
4
RESERVATION STATION
MULTIPLEXOR
3
1
COMPUTER
2
FIDE
6

FIG. 1

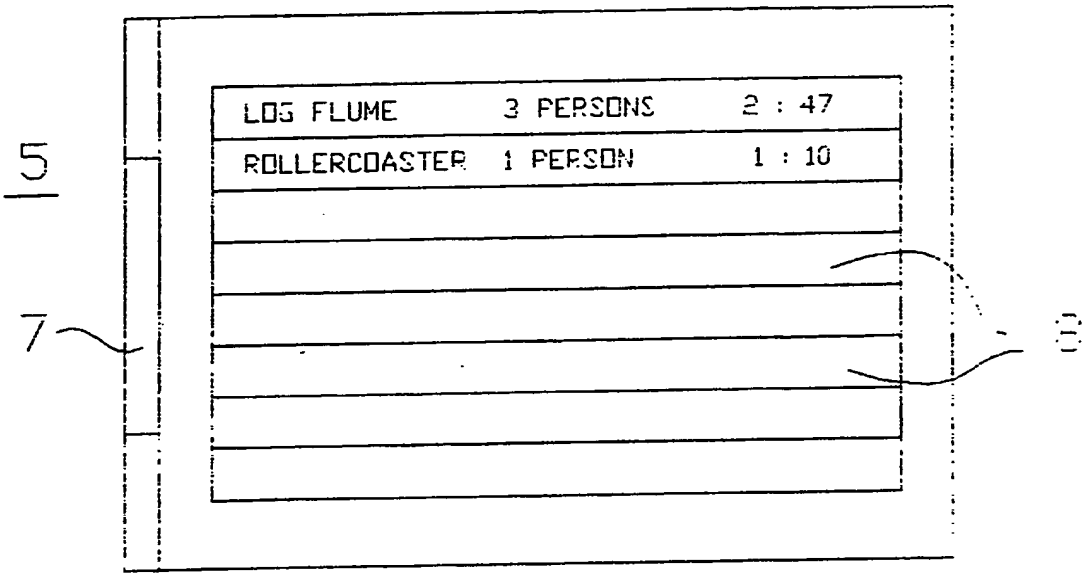
LOG FLUME 3 PERSONS 2 : 47
ROLLERCOASTER 1 PERSON 1 : 10
5
7
8

FIG. 2a

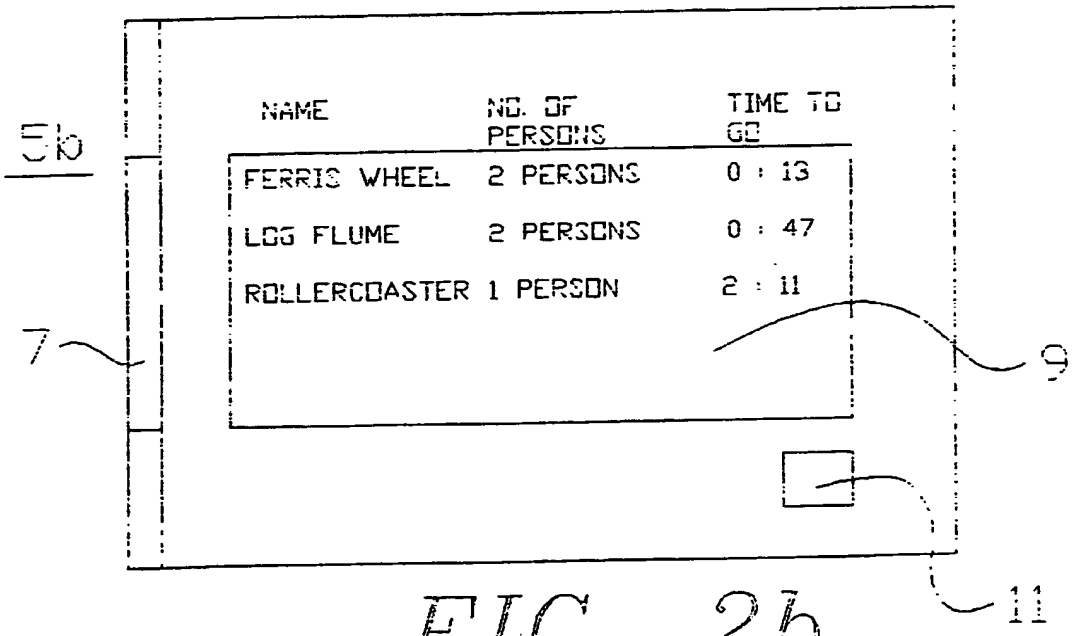
NAME
NO. OF PERSONS
TIME TO GO
FERRIS WHEEL 2 PERSONS 0 : 13
LOG FLUME 2 PERSONS 0 : 47
ROLLERCOASTER 1 PERSON 2 : 11
5b
7
9
11

FIG. 2b

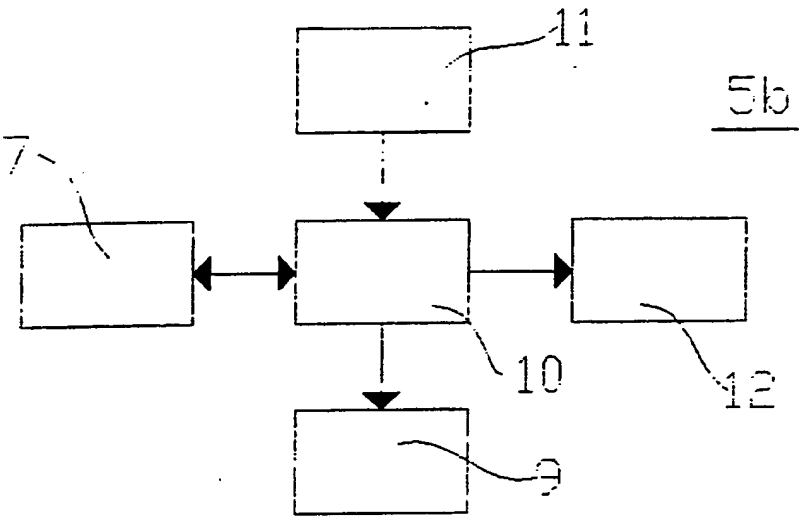

FIG. 3

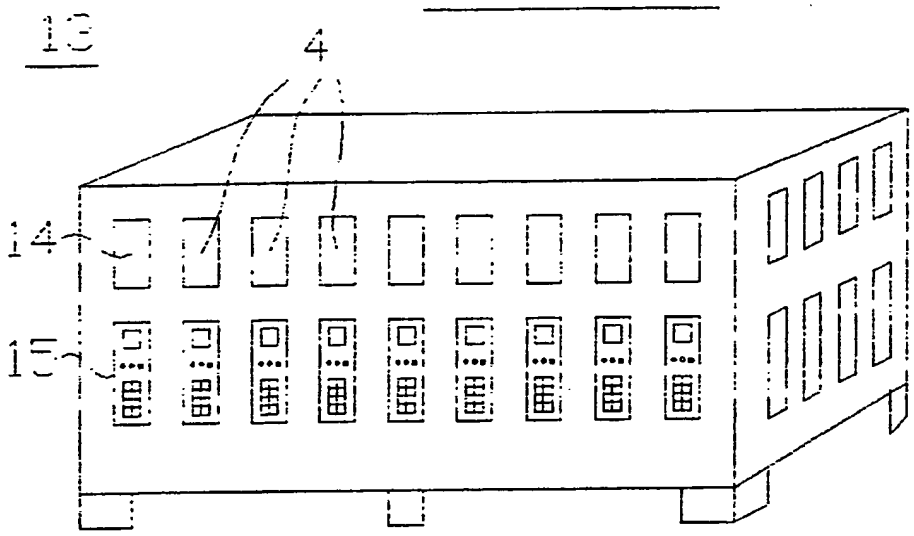

FIG. 4

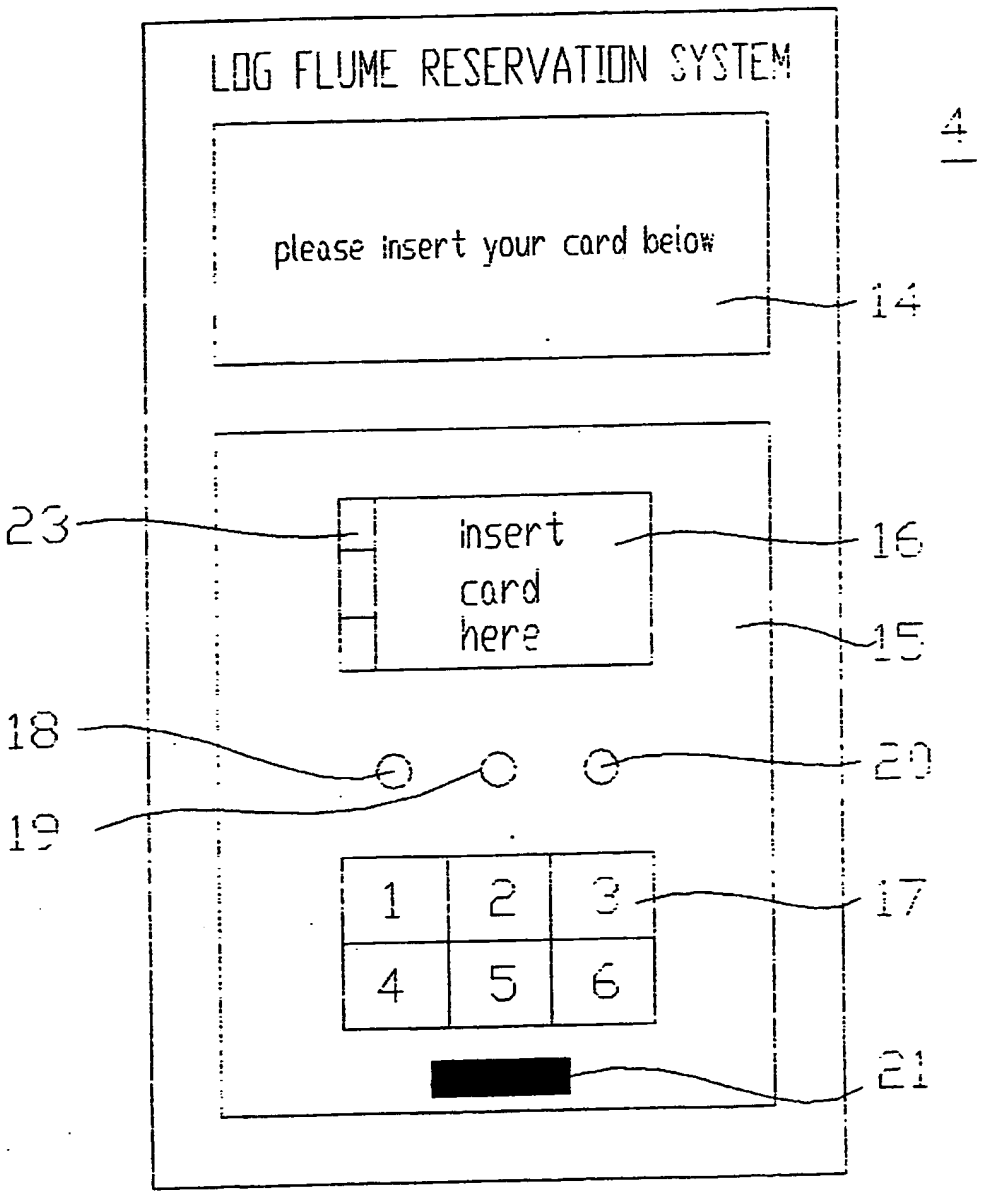
LOG FLUME RESERVATION SYSTEM
4
please insert your card below
14
23
insert
card
here
16
15
18
19
20
1
2
3
4
5
6
17
21

FIG. 5

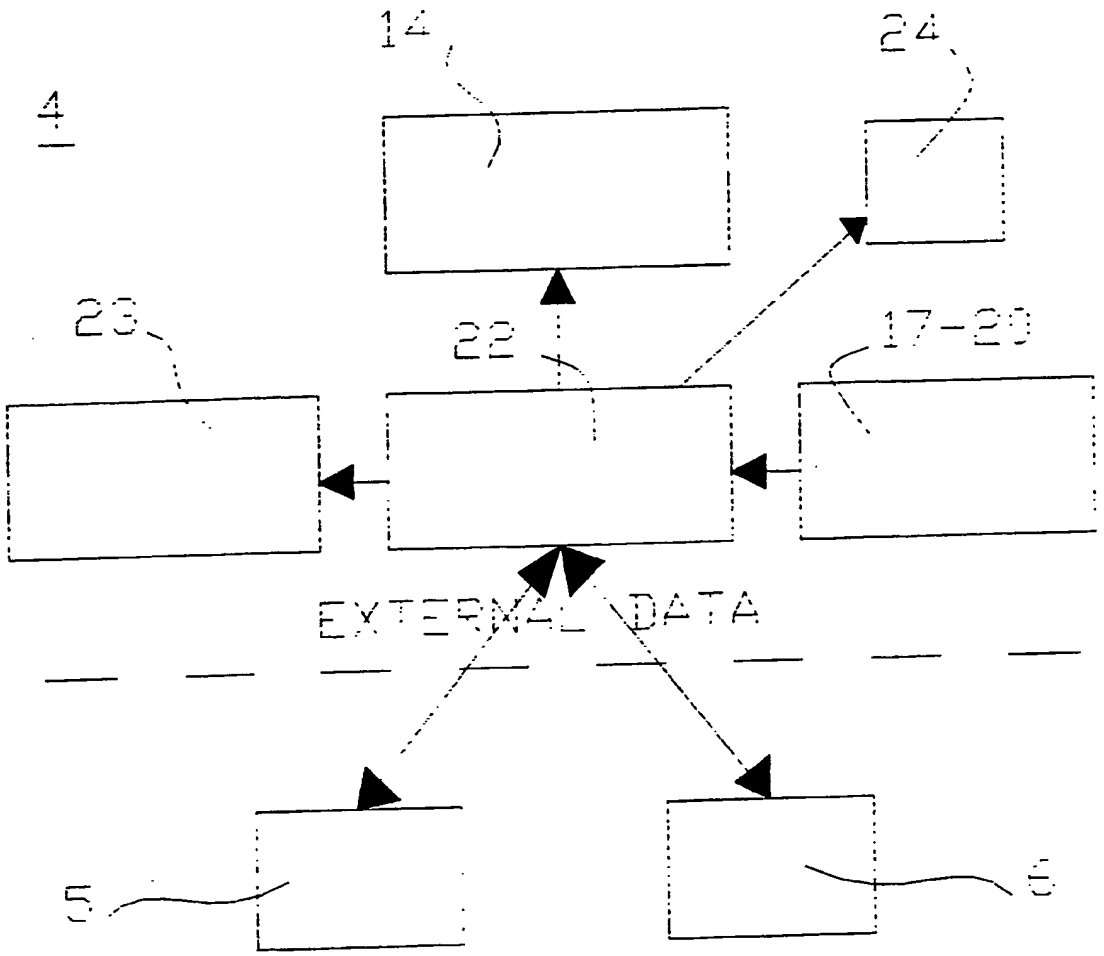

FIG. 6

RESERVATION SYSTEMS

This invention relates to reservation systems, and may have particular although not exclusive application to amusement parks and fairground attractions.

In recent years, amusement parks have become very popular in the U.K., and in many other countries. In such parks, there are a number of attractions in which the customers may participate. In many parks, a standard fee provides entry into the park and the option to participate in any of the attractions without further payment. Alternatively, there may be a reduced fee or no fee for entering the park, but each person must then pay a fee for each attraction in which they participate.

In either case, whenever an amusement park is busy, it is very common for substantial queues to build up at the most popular attractions, at least. Indeed, for the most popular attractions or rides, the customers may have to queue for a number of hours.

This is not particularly satisfying for the customers. The park owners do not regard such queues as good business either. When people are standing in queues, they are generally unable to spend any money on other rides or amenities (food, drink, etc.) within the park. Thus, from the park owners' point of view, this can entail a significant loss of potential revenue, quite apart from the customers becoming fed up from having to wait so long in the queues.

Preferred embodiments of the present invention aim to alleviate some of these problems.

More generally, according to a first aspect of the present invention, there is provided:

a reservation system for a repetitive event, the system comprising:

a first register for recording a first number of existing reservations for an event;

a first calculating means arranged to calculate the expected time taken for said first number of persons to experience the event;

input means arranged to receive from a user a new reservation request; and

output means arranged to receive said expected time from the first calculating means and to output to a user a corresponding reservation time of the event for which a new reservation request may be accepted.

Preferably, the system further includes updating means arranged to up-date said first register repetitively by decreasing said first number by the number of reservations for the event which have been taken up since the last up-date, and incrementing said first number by the number of new reservations which have been accepted since the last up-date.

According to a second aspect of the present invention, there is provided a method of making reservations for a repetitive event, using a system in accordance with the first aspect of the invention, the method comprising the steps of:

recording a first number of existing reservations for the event in said first register;

calculating by said first calculating means the expected time taken for said first number of persons to experience the event;

receiving by said input means a new reservation request from a user; and

outputting to a user, by said output means, a reservation time of the event for which a new reservation request may be accepted, which reservation time depends upon said expected time received by the output means from the first calculating means.

The invention may have numerous alternative, additional or optional features. For example, it may include one or more of the various features mentioned in the following description or illustrated in the accompanying drawings.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 is a schematic diagram of a reservation system;

Figure 2a is a schematic representation of an individual electronic card;

Figure 2b illustrates an alternative electronic card to that shown in Figure 2a;

Figure 3 is a schematic block diagram of the card of Figure 2b;

Figure 4 illustrates an example of a multiple reservation station;

Figure 5 illustrates an individual reservation station; and

Figure 6 is a block diagram illustrating the components of the reservation station of Figure 5.

Referring to Figure 1, the reservation system 1 includes a computer 2 (for example, of the personal computer type), which controls operation of the reservation system as a whole. The computer communicates via a multiplexor 3 with a number of reservation stations 4, each of which is adapted for use with a plurality of electronic cards 5. The computer 2 also communicates with a ride 6, for which reservations are to be made by means of the system 1.

The ride 6 is one of many provided in an amusement park (or theme park). In this example, a customer pays a single entry fee to the park, whereafter all rides are then free. However, the system could operate just as well, if the customer had to make a payment for each of the rides, - either in advance, or when the ride is actually taken.

Upon entering the amusement park, each customer is given an electronic card 5. Preferably, each such card 5 is provided with an identifying tag so that, if the customer attempts (deliberately or otherwise) to leave the park without returning the card, detectors at

the exits of the park will detect the passage of the card 5 and sound an alarm.

The electronic card 5 is used for making reservations for the various rides in the amusement park. To do this, the card 5 is inserted in any one of the number of reservation stations 4, and used to make a reservation for a particular ride.

When the electronic card 5 is inserted into the reservation station 4, the customer then uses a keyboard on the reservation station 4 to indicate the number of reservations that are desired. Then, the reservation station 4 communicates with the computer 2, via the multiplexor 3.

The computer 2 has a register which records the number of existing reservations for the particular ride 6, and calculates the expected time taken for this number of persons to participate in the ride 6. It then outputs to the customer at the reservation station 4 the earliest reservation time for which the reservation request may be accepted for the ride 6. If this is acceptable to the customer, the customer confirms this by an appropriate entry on the keyboard of the reservation station. In an optional feature, the customer may press an advance key repeatedly, to obtain another reservation time that is more to his liking. The customer can then confirm acceptance of this later reservation time.

Once a reservation request has been accepted by the computer 2 and confirmed by the customer, the expected time of that reservation is communicated to the electronic card 5. An electronic timer in the card 5 is then activated. Five minutes (or any other predetermined

time) before the time of the reservation, the timer in the card 5 emits an audible bleep and/or a visual indication, to alert the customer to make his way to the ride, in order to take up his reservation.

As a matter of procedure, the supervisor at the ride 6 may allow customers with reservations to take part in the ride, only if they turn up within a predetermined time after their reservation - for example, within fifteen minutes of their allotted reservation.

Preferably, when a reservation is accepted and confirmed, the reservation station 4 prints out a slip which indicates the ride, the number of people, and the reserved time. This slip is then attached by suitable means to the electronic card 5.

Figure 2a shows one example of the electronic card 5. Along one edge of the card 5 is an infra-red reader 7, by means of which communication is provided between the card 5 and the reservation stations 4. The card 5 also carries a number of slots 8, each of which is adapted to receive a print-out from one of the reservation stations 4.

Figure 2b illustrates an alternative embodiment of electronic card, and this is denoted by the reference 5b. As before, the card 5b has an infra-red reader 7 for communication with the reservation stations 4. However, rather than employing printed slips to indicate the reservation that has been made, the card 5b includes a liquid crystal display 9, on which the respective information is displayed. The card 5b also includes a cancel button 11, which the customer depresses to delete a respective reading, when he has been on the respective

ride. As an alternative to this, the display may automatically delete an entry, a predetermined time (e.g. 15 minutes) after the specified reservation.

Figure 3 shows a simple block diagram of the electronic card 5b of Figure 2b. The card 5b is controlled by a micro processor unit 10, which communicates with the infra-red reader 7, the LCD screen 9, the cancel button 11 and the alarm/bleeper 12.

The example of the multiple reservation system 13 that is shown in Figure 4 illustrates one example of how a number of reservations can be made simultaneously by a number of customers. The multiple reservation station 13 contains a number of individual reservation stations 4, each of which includes a respective LED display screen 14 and a respective operating panel 15.

An individual reservation station 4 is shown in more detail in Figure 5. The LED screen displays instructions and information to the customer. The operating panel 15 includes a slot 16 to receive an electronic card 5, a key-pad 17 to input information, and a plurality of operator buttons including an advance button 18, an accept button 19, and a cancel button 20. At the bottom of the operating panel 15 is a print-out slot 21. At one side of the slot 16 is an infra-red transmitter 23, for communication with a card 5 disposed in the slot.

Figure 6 is a simple block schematic diagram of the individual reservation station 4 that is illustrated in Figure 5. The operation of the reservation station 4 is controlled by a respective micro-processor unit 22, which communicates with the infra-red transmitter 23, the

LED display screen 14, the printer 24 and the key-pad and buttons 17 to 20. Externally, the reservation station 4 communicates with the electronic card 5 and the ride 6.

In use, a customer responds to instructions on the LED display 14, and inserts his card 5 in the slot 16. Communication is then established between the card 5 and the reservation station 4, via the infra-red transmitter 23 and reader 7.

The customer then proceeds to make his reservation, generally along the lines discussed above. He enters the number of reservations required by means of the key-pad 17. The earliest possible reservation time is displayed on the LED display 14. This can be accepted by use of the button 19, or advanced by means of the button 18, and subsequently accepted. The whole reservation request may be cancelled by means of the button 20, which may also be used to cancel a reservation that has been made at an earlier time. Once a reservation has been accepted and confirmed, the details of it are printed out on the slip which issues at the printer slot 21, and the slip can be attached to the card 5, as illustrated in Figure 2a.

The system may be varied in a number of ways.

Firstly, the computer 2 may calculate an expected reservation time for a customer, using a predetermined expected throughput rate for the particular ride. Alternatively, it may continuously monitor the throughput rate of the ride over one or more predetermined periods, and continuously extrapolate this data to provide an expected reservation time, for a particular request. A supervisor at a respective ride may have the facility to

input data to the main computer 2 - for example, to identify periods for which the ride may be temporarily inactive - for example, due to an operating fault. Alternatively or additionally, the computer 2 simply continuously monitors the number of customers experiencing the respective ride, which should automatically take into account any real time delays due to operating difficulties.

In a more sophisticated arrangement, the computer 2 and/or reservation stations 4 may communicate with all of the electronic cards directly by means of, for example, radio links. Then, if the real time analysis of the throughput at the various rides reveals that one or more of the rides is running significantly late, or if a delay is noted in any other way, a revised reservation time may be transmitted to each of the relevant electronic cards. Where the electronic card is of the type 5b of Figure 2b, the new reservation time (and/or countdown time) may automatically be updated. If desired, the alarm may bleep and an additional light provided on the card may flash, to alert the customer to the fact that a reservation time has been altered.

Where the card is of the simpler type shown in Figure 2a, it may also be provided with such a visual and/or audible alarm, to indicate a significant change of reservation time. Upon seeing this, the customer then inserts the card into the nearest reservation station 4, which updates the reservation time for the customer, displays an appropriate message on the screen 14, and prints out a new reservation slip, which the customer can then insert into his card 8. In any event, the arrangement may be such that customers can insert their cards 5 into the stations 4 at any time, to confirm their

reservation time(s) and any updates or modifications thereto.

As another alternative or additional feature, there may be positioned various displays around the amusement park, which are continuously updated by the or each computer 2. The displays indicate the amount of time that any particular ride is running late, at that moment. Then, the customers can themselves make the appropriate adjustment to their reservation times, without the need for any more sophisticated communication between the computer 2/reservation station 4 and the electronic cards 5.

In Figure 5, the individual reservation station 4 is for a particular, dedicated ride. It may be located immediately adjacent that ride. Additional similar reservation stations may be disposed around the park. In a modified arrangement, each individual reservation station 4 may be used to make a reservation on any desired one of a number of different rides (or attractions). Then, additional keys will be required on the operating panel 15, for the user to select the ride(s) for which he wishes to make a reservation.

In an analogous manner, there may be provided an individual, respective main computer 2 for controlling the reservations for one particular ride. Alternatively, a single main computer 2 may control the reservations for a plurality of different rides.

In a simplification of the illustrated system and its modifications, the electronic card 5 may be replaced by a more simple multi-event timer, provided with slots 8 to receive the printed reservation slips. In this case,

the customer uses the reservation station 4 much as before, to make a reservation. However, the timer card is not inserted into the reservation station 4. When a reservation has been accepted and confirmed, the reservation slip is printed, and may be inserted into a respective slot 8 in the timer card. However, it is then up to the customer to make his own timer entry, to give himself a reminder of the reservation time. Of course, a number of different alarm times may be set, for different reservation times, in the multi-event timer.

In a yet further simplification, the customer may simply collect reservation slips printed and dispensed from reservation stations 4, and then maintain his own independent check on the time, to ensure that he turns up at the appropriate ride at the reserved time.

Thus, there may be provided a reservation system whereby, in an amusement park, customers may simply and effectively make reservations for rides, and be assured of being able to participate in the respective events within a reasonable period of time of turning up at the attraction. The system may make any number of reservations for various different rides, but the limits to the number of reservations may be predetermined, if desired. In particular, the arrangement may be such that no card 5 may be used to make a second reservation for a given ride, until the first ride has been taken (or the reservation time for that first ride has passed). When the electronic cards 5 are inserted into the reservation stations 4, the operating system may be so arranged that, before a new reservation time is offered for a chosen ride, the computer automatically checks all existing reservations for that card, to ensure that there is no conflict of reservations.

Preferably, each individual electronic card 5 has a unique identification, which is scanned by each reservation station, each time that the card is inserted in a reservation station. This scanning operation may be used to check the validity or integrity of the particular electronic card.

In modifications, the reservation cards such as 5 may include means by which they may be read mechanically. For example, they may store information in punched hole format. Reservation times may be printed directly onto them. They may include a magnetic stripe, which may be read (and possibly written to) by the reservation stations.

Although the above embodiments have been described and illustrated in connection with reservations for rides in an amusement park, it will be appreciated that systems embodying the invention may be adapted for more general use for making reservations for a repetitive event.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS

1. A reservation system for a repetitive event, the system comprising:

a first register for recording a first number of existing reservations for an event;

a first calculating means arranged to calculate the expected time taken for said first number of persons to experience the event;

input means arranged to receive from a user a new reservation request; and

output means arranged to receive said expected time from the first calculating means and to output to a user a corresponding reservation time of the event for which a new reservation request may be accepted.

2. A reservation system according to claim 1, further including updating means arranged to update said first register repetitively by decreasing said first number by the number of reservations for the event which have been taken up since the last update, and incrementing said first number by the number of new reservations which have been accepted since the last update.

3. A reservation system according to claim 1 or 2, including at least one reservation station and at least one portable hand-held device which interfaces with said reservation station to enable a user to input a said reservation request and receive a said reservation time, via said reservation station.

4. A reservation system according to claim 3, wherein said hand-held device is in the form of a card.

5. A reservation system according to claim 3 or 4, wherein said hand-held device includes means for displaying at least one said reservation time.

6. A reservation system according to claim 3, 4 or 5, wherein said hand-held device includes alarm means for providing a visible and/or audible alarm in connection with at least one said reservation time.

7. A reservation system according to any of the preceding claims, including monitoring means for monitoring any delays in the running of the event and outputting information to amend existing said reservation times to take into account any such delays.

8. A method of making reservations for a repetitive event, using a system in accordance with any of the preceding claims, the method comprising the steps of:

recording a first number of existing reservations for the event in said first register;

calculating by said first calculating means the expected time taken for said first number of persons to experience the event;

receiving by said input means a new reservation request from a user; and

outputting to a user, by said output means, a reservation time of the event for which a new reservation request may be accepted, which reservation time depends

upon said expected time received by the output means from the first calculating means.

9. A reservation system or method substantially as hereinbefore described with reference to the accompanying drawings.

10. A reservation system or method according to any of the preceding claims, wherein the repetitive event is an amusement park ride.

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